

CLAIMS

1. A laminated security document comprising:
 - a transparent or translucent support layer;
 - a first security layer provided on one side of the support layer;
 - 5 a second security layer provided on the opposite side of the support layer;
 - the first and second security layers having security regions which together form a composite security image or device to indicate an authentic security state;
 - 10 a first tamper evident means provided between the support layer and the first security layer;
 - a second tamper evident means provided between the support layer and the second security layer;
 - wherein upon exposure of the security document to predetermined
 - 15 conditions to delaminate the document, at least one of the tamper evident means is arranged to destruct or otherwise affect at least one of the security layers to indicate an unauthentic security state.
2. A security document according to claim 1 wherein at least one of the tamper evident means is arranged to separate a portion of the security document
- 20 containing one of the security layers from the remainder of the security document upon exposure to the predetermined conditions.
3. A security document according to claim 2 wherein the tamper evident means comprises a region which destructs or deforms upon exposure to the predetermined conditions to result in separation of said portion of the security
- 25 document.

4. A security document according to claim 2 or claim 3 wherein at least one of the tamper evident means comprises a weakly coherent or adherent tamper evident layer.

5. A security document according to claim 4 wherein the tamper evident layer is formed from a material having a glass transition temperature which is lower than the glass transition temperature of the material from which the support layer is formed.

6. A security document according to claim 4 or claim 5 further comprising at least one outer layer over at least one of the security layers.

10 7. A security document according to any one of claims 4 to 6 wherein said outer layer is formed from a polymeric material having a glass transition temperature which is higher than the glass transition temperature of the material from which the tamper evident layer is formed.

15 8. A security document according to claim 5 or claim 7 wherein the difference between the low glass transition temperature of the tamper evident layer and the high glass transition temperature of the support layer and/or the outer layer is at least 30°C.

9. A security document according to claim 8 wherein the difference between the low and high glass transition temperatures is at least 50°C.

20 10. A security document according to any one of claims 2 to 9 wherein at least one of the tamper evident means comprises an adhesive.

11. A security document according to any one of claims 1 to 9 wherein at least one of the tamper evident means comprises a weakly coherent tamper evident region formed during lamination of the support layer to other layers of the document.

25 12. A security document according to claim 11 wherein the tamper evident region is formed by application of heat and/or pressure.

13. A security document according to any one of claims 4 to 9 wherein the tamper evident layer is formed from polyethylene.

14. A security document according to any one of the preceding claims wherein the transparent or translucent support layer is formed from at least one
5 polymeric material.

15. A security document according to claim 14 wherein the polymeric material of the support layer comprises any one or more of the following: polyethylene terephthalate (PET); polycarbonate; polypropylene; or polyvinyl chloride (PVC).

10 16. A security document according to any one of claims 6 to 9 wherein the at least one outer layer is formed from a polymeric material selected from the group comprising: polyethylene terephthalate (PET); polycarbonate; polypropylene; or polyvinyl chloride.

15 17. A security document according to any of the preceding claims wherein at least one of the tamper evident means includes a material that changes appearance upon exposure to predetermined conditions.

18. A security document according to claim 17 wherein said material of the tamper evident means changes from a transparent or translucent state to a coloured or opaque state upon exposure to the predetermined conditions.

20 19. A security document according to claim 17 wherein said material of the tamper evident means changes from one colour to another colour upon exposure to the predetermined conditions.

25 20. A security document according to any one of the preceding claims wherein the tamper evident means is arranged to destruct or otherwise affect at least one of the security layers upon exposure to one or more of the following predetermined conditions: a specific range of temperature; a specific range of one or more forces; a specific range of impulses and a specific range of pressures.

21. A security document according to any one of the preceding claims wherein the composite security device comprises a composite image having a first part of the image provided by at least one security region of the first security layer and a second part of the composite image provided by at least one security region
5 of the second security layer.

22. A security document according to any one of the preceding claims wherein at least one of the security regions is formed by an opacifying security coating.

23. A security document according to claim 21 or claim 22 wherein the
10 security regions of the first and second security layers are formed by opacifying security coatings.

24. A security document according to claim 23 wherein the security coatings of the first and second security layers have different opacity levels.

25. A security document according to any one of the preceding claims
15 wherein the security regions of the first and second security layers are formed from at least one opacifying pigment.

26. A security document according to claim 25 wherein the security regions of the first and second security layers are formed from different opacifying pigments.

20 27. A security document according to any one of claims 21 to 25 wherein the security regions of the first and second security layers have different colours.

28. A security document according to any one of claims 1 to 20 wherein the composite security device comprises a security feature in one of the security layers which only indicates an authentic security state when viewed through a
25 reading screen or decoding device in the security region of the other security layer.

29. A security document according to claim 28 wherein the security feature comprises scrambled indicia in one of the security layers and a reading screen is provided in the other security layer for unscrambling the scrambled indicia.

5 30. A security document according to claim 29 wherein the reading screen is a lenticular reading screen.

31. A security document according to any one of the preceding claims wherein the composite security device is an optically variable device.

10 32. A security document according to claim 28 wherein the security feature is an optically variable image and the decoding device is an optical screen or lens.

33. A security device according to claim 32 wherein the security feature is a region printed from metameric inks and the optical screen is an optical filter.

15 34. A security device according to claim 28 wherein the security feature is a micro image and the decoding device is a lens.

35. A security device according to claim 32 or claim 34 wherein the lens is formed from a lenticular screen or an array of microlenses.

20 36. A security device according to any one of claims 1 to 20 wherein the security regions in the first and second security layers incorporate sets of fine lines or dots which together produce an interference effect.

37. A security device according to claim 36 wherein the security regions together produce a Moire pattern.

25 38. A security device according to claim 28 wherein the security feature in one of the security layers is a polarising layer or pattern and the reading screen or decoding device in the other security layer is a polarising layer.

39. A security document according to any one of the preceding claims wherein the document includes at least one layer of printed information or indicia over one or both of the security layers.

40. A security document according to claim 39 wherein the printing is
5 substantially omitted in the security regions of the security layers.

41. A method of manufacturing a laminated security document comprising:

applying a first tamper evident means on one side of a transparent or translucent support layer;

10 applying a second tamper evident means on the opposite side of the transparent or translucent support layer;

applying a first security layer over the first tamper evident means;

applying a second security layer over the second tamper evident means;

15 the first and second security layers having security regions which together form a composite security device or image to indicate an authentic security state; and

wherein, upon exposure of the security document to predetermined conditions to delaminate the document, at least one of the tamper evident means
20 is arranged to destruct or otherwise affect at least one of the security layers to indicate an unauthentic security state.

42. A method according to claim 41 wherein at least one polymeric outer layer is applied over at least one of the security layers.

43. A method according to claim 41 or claim 42 wherein at least one of
25 the tamper-evident means is a weakly coherent or adherent tamper evident layer.

44. A method according to claim 43 wherein the tamper evident layer is formed from a polymeric material having a glass transition temperature which is lower than the glass transition temperature of the support layer and/or the outer layer.

5 45. A method according to claim 43 wherein the tamper evident layer is an adhesive

46. A method according to any one of claims 41 to 43 wherein at least one of the tamper evident means is a weakly coherent region formed by application of heat and/or pressure during lamination of the security document.

10 47. A method according to any one of claims 41 to 46 wherein at least one of the tamper evident means includes a substance that changes appearance or colour upon exposure to the predetermined conditions.

48. A method according to any one of claims 41 to 47 wherein at least one of the security regions of the security layers is an opacifying coating applied
15 over the tamper evident means.

49. A method according to claim 48 wherein opacifying security coatings are applied over each of the first and second tamper evident means to form the composite security device.

50. A method according to claim 49 wherein opacifying coatings having
20 different opacity levels are applied over the first and second tamper evident means.

51. A method according to any one of claims 48 to 50 wherein at least one opacifying pigment is applied over the tamper evident means to form the opacifying coating or coatings.

25 52. A method according to any one of claims 48 to 51 wherein said at least one opacifying coating is applied by printing.

53. A method according to claim 52 wherein said at least one opacifying coating is applied using any one of the following printing processes: gravure; silk screen; offset; and flexo.